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ON April 19, 2006

Mark B. Quatt Registration No. 30,484

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants: Schwark et al.
Atty. Docket No: D-43553-01
Serial No.: 10/683,531
Group Art Unit: 1773
Filing Date: October 10, 2003
Examiner: Nakarani, Dhirajlal S.
Title: OXYGEN SCAVENGING FILM WITH HIGH SLIP PROPERTIES

APPEAL BRIEF

Commissioner for Patents
Alexandria, VA 22313-1450

Dear Sir:

This appeal Brief is being filed in support of a Notice of appeal filed on February 2, 2006.

A Petition for a one (1) months extension of time is enclosed.

The Commissioner is authorized to charge the fee of $500 for filing an appeal Brief, to Deposit Account No. 07-1765.

The Commissioner is authorized to charge any additional fees that may be required or credit any overpayment to Deposit Account No. 07-1765.

Respectfully submitted,

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4-19-06
date

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Real Party in Interest

The real party in interest in this patent application is Cryovac, Inc.

Related Appeals and Interferences

There are no other appeals or interferences known to appellants, the appellants' legal representative, or assignee that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

The claims now on appeal are claims 1 to 6, 9 to 16, and 18 to 22.

Claims 1 to 20 were rejected in an Office Action dated July 19, 2005.

By amendment of September 2, 2005, claims 1 and 11 were amended, claims 7, 8, and 17 were canceled, and claims 21 and 22 were added.

Claims 1 to 6, 9 to 16, and 18 to 22 were rejected in the Final Office Action dated November 29, 2005.

Appellants thereafter filed a Notice of Appeal on February 2, 2006.

A copy of the claims presently on appeal appears in the Claims Appendix.

Status of Amendments

The claims now on appeal are claims 1 to 6, 9 to 16, and 18 to 22.

These are the same claims that were rejected in the Final Office Action dated November 29, 2005.

No amendments since that Office Action have been sought or entered.

A copy of the claims presently on appeal appears in the Claims Appendix.

Summary of Claimed Subject Matter

Concise Explanation of the subject matter of independent claim 1

A multilayer film comprises a first and second outer layer each comprising a polymer (page 6, lines 31 to 32).

The film also comprises an internal layer comprising an oxygen scavenger (page 6, lines 32 to 33).

At least one of the first and second outer layers comprises a blend of a polymer, a siloxane having a viscosity of from $1x10^7$ centistokes to $5x10^7$ centistokes, and an antiblock agent (page 6, line 33 to page 7, line 2).

The kinetic coefficient of friction (film surface to film surface) of the film is 0.5 or less (ASTM D1894-99) (page 26, lines 14 to 16, page 28, lines 13 to 15, page 31, lines 15 to 18, and page 34, lines 13 to 16).

The average oxygen scavenging rate of the film is at least 20 cc/m^2/day four days after an oxygen scavenging property of the film is activated (page 16, lines 8 to 10; page 25, lines 18 to 25; page 26, lines 4 to 9; page 29, lines 19 to end of page; page 30, lines 4 to 15; and page 40, lines 30 to 32).

Concise Explanation of the subject matter of independent claim 11

A laminate comprises a multilayer film comprising

a first layer comprising a blend of a polymer; a siloxane having a viscosity of from $1x10^7$ centistokes to $5x10^7$ centistokes, and an antiblock agent (page 8, lines 5 to 7);

a second layer comprising an oxygen scavenger (page 8, lines 7 to 8);

a third layer comprising a polymer (page 8, line 8), and

a substrate bonded to the third layer of the multilayer film (page 8, lines 8 to 9).

The kinetic coefficient of friction (film surface to film surface) of the multilayer film is 0.5 or less (ASTM D1894-99) (page 26, lines 14 to 16, page 28, lines 13 to 15, page 31, lines 15 to 18, and page 34, lines 13 to 16).

The average oxygen scavenging rate of the film is at least 20 cc/m^2/day four days after an oxygen scavenging property of the film is activated (page 16, lines 8 to 10; page 25, lines 18 to 25; page 26, lines 4 to 9; page 29, lines 19 to end of page; page 30, lines 4 to 15; and page 40, lines 30 to 32).

Grounds of Rejection to be reviewed on appeal

The grounds of rejection to be reviewed on appeal (per the Office Action mailed November 29, 2005) are as follows:

1. Claims 1 to 6, 9 to 16, and 18 to 22 stand rejected under §103 (a) as being unpatentable over Blinka et al. (US 5,834,079) in view of Peiffer et al. (US 5,681,650), Hauenstein et al. (US 5,708,084), and Mehta (US 5,080,489) for the reasons of record set forth in paragraph 2 of the Office Action mailed July 19, 2005 (Paper No. 20050620).

Argument

1. Claims 1 to 6, 9 to 16, and 18 to 22 are patentable under 35 U.S.C. §103 (a) over Blinka et al. (US 5,834,079) in view of Peiffer et al. (US 5,681,650), Hauenstein et al. (US 5,708,084), and Mehta (US 6,080,489).

It is known that many oxygen sensitive products, including food products such as meat and cheese, deteriorate in the presence of oxygen. These products benefit from the use of oxygen scavengers in their packaging.

Packaging films typically require a low coefficient of friction (COF) in order to process well on certain types of packaging equipment. In the case of vertical form fill seal (VFFS) equipment, sealant layers typically include linear low density polyethylene, metallocene polymers, and ethylene/vinyl acetate copolymers. These materials are typically tacky, and present a challenge for the development of adequate film surface properties such as low COF or high slip. Current antiblock/slip packages developed to overcome this problem have relied on various inorganic antiblock agents in combination with amide wax slip agents. Unfortunately, low molecular weight amide waxes require sufficient time to "bloom" to the surface before a low COF is achieved. It has been shown that pressure in a wound roll of film can reduce the "bloom" or diffusion rate. Given differential pressures throughout a roll of film that can exceed 400 psi, differential amounts of amide wax surface segregation are encountered. The result is an inconsistency in slip or COF performance throughout a roll of film. Thus, only portions of a roll of film may be utilized on packaging equipment and the rest is either thrown away or returned to the supplier.

It has also been found that conventional amide wax usage in oxygen scavenging films has been shown to degrade the oxygen scavenging performance of the film, e.g. oxygen scavenging rate, and also can negatively affect the organoleptic attributes of the film.

A variety of potential antiblock and slip agents in various sealant resins were evaluated in an effort to prepare a film having both high slip and oxygen scavenging functionality. Tests indicated that although conventional combinations of inorganic antiblock and fatty amide wax slip agents can be effective for producing an oxygen scavenging film with low COF, properties such as oxygen scavenging rate, heat seal, and organoleptics were significantly degraded by the waxes.

The present invention offers a solution to these issues.

The Office Action of July 19, 2005, referred to and relied on in the Final Office Action, relies on Blinka et al. for the teaching of an oxygen scavenger, as well as for other features of the claimed invention (see page 2, paragraph 2 of the Office Action). The Office Action recognizes that Blinka et al. fails to disclose the claimed siloxane in the outer layer.

The Office Action relies on Peiffer et al. for the teaching of an outer layer containing antiblocking agent and silicone oil, as well as for other features of the claimed invention (see page 2, paragraph 2 of the Office Action). The Office Action recognizes that Peiffer et al. fails to disclose the claimed viscosity of siloxane material.

The Office Action relies on Hauenstein et al. for the teaching of a siloxane material with the viscosity and molecular weight indicated at page 3, first paragraph of the Office Action.

The Office Action relies on Mehta for the teaching of a blend of siloxane materials that includes a high molecular weight polysiloxane with a number average molecular weight of from 60,000 to 2,000,000; the blend providing reduced coefficient of friction (page 3, second paragraph of the Office Action).

The Office Action concludes, at page 3, third paragraph that

> it would have been obvious to a person of ordinary skill in the art to which this invention pertains to utilize disclosures of Peiffer et al., Hauenstein et al. and Mehta in the invention of Blinka et al. to add Mehta's polysiloxane blend in the outer layer with antiblocking agent to improve processability and to reduce coefficient of friction.

Appellants respectfully disagree.

In the present invention, a multilayer film comprises an internal layer comprising an oxygen scavenger, and a first and second outer layer, at least one of which comprises a blend of a polymer, a siloxane having a viscosity of from $1\text{x}10^7$ centistokes to $5\text{x}10^7$ centistokes, and an antiblocking agent. The inventors have found a benefit in making this combination, such that a desirable coefficient of friction can be obtained, while obtaining oxygen scavenging performance from the film. In independent claims 1 and 11, the recited properties of the film include a combination of

a kinetic coefficient of friction (film surface to film surface) of 0.5 or less (ASTM D1894-99); and

an average oxygen scavenging rate of the film of at least 20 cc/m^2/day four days after an oxygen scavenging property of the film is activated.

The extensive examples and comparative examples given on pages 24 through 37 of the present specification provide evidence of the benefit of the claimed combination.

Appellants respectfully submit that of the references relied on in the Office Action, only Blinka et al. appears to disclose an oxygen scavenger. None of Peiffer et al., Hauenstein et al., and Mehta appear to disclose an oxygen scavenger. None of the references address the problem of degraded oxygen scavenging rate with the use of low COF materials, or offer a solution addresses the problem of solving the challenge of providing both oxygen scavenging activity and a low coefficient of friction in a single film.

It is thus submitted that no motivation has been demonstrated in these references to combine them such that the claimed combination of antiblock agent and siloxane is employed in a film comprising an internal layer comprising an oxygen scavenger, where the kinetic coefficient of friction (film surface to film surface) of the film is 0.5 or less (ASTM D1894-99); and where the average oxygen scavenging rate of the film is at least 20 cc/m^2/day four days after an oxygen scavenging property of the film is activated. To establish a *prima facie* case of obviousness, there must be i.a. the teaching or suggestion to make the claimed combination and the reasonable expectation of success, and both must be found in the prior art, and not based on applicant's disclosure. MPEP §706.02 (j). No such motivation has been demonstrated here. No evidence has been presented to provide a reasonable expectation of success, i.e. of providing a film film having a combination of a kinetic coefficient of friction (film surface to film surface) of 0.5 or less (ASTM D1894-99), and an average oxygen scavenging rate of the film is at least 20 cc/m^2/day four days after an oxygen scavenging property of the film is activated.

The Final Office Action states at page 2 that

> There is nothing on record showing that Blinka et al's film does not have the claimed properties.

Appellants point to AB$_1$ in Blinka et al. (see Table 1, column 8 of Blinka et al.) which is identified as 10,075 ACP Syloid™ antiblock concentrate from Tecknor Color. This material is identified in the table as having 10% silica. Further down column 8 at lines 54 to 56, Blinka et al. identify PEB$_1$ as a blend having 10% AB$_1$. Thus, PEB$_1$ has 1% silica. At column 9, lines 14 to 17 of Blinka et al. are disclosed two films, Example 1 and Comp. 1, having PEB$_1$ as the outer layer. Therefore, these films have 1% silica in the outer layer.

The present application discloses the same antiblock material as in Blinka et al.. In Blinka et al., it is referred to as AB$_1$, and in the present application it is referred to as AB2 (see “AB2” of Table 1 on page 17, and its description on page 18, lines 3 and 4). They are both 10,075 ACP Syloid™ antiblock concentrate from Tecknor Color. Control Example 4 of the present application (see page 25 of the application) shows an outer layer having 10% of the AB2 antiblock concentrate, which of course means that the outer layer has 1% silica. The kinetic COF value for Control Example 4 is 0.71 (page 25, middle column of table). Thus, Blinka et al.'s film does not demonstrate the claimed properties of the present film.

Appellants respectfully ask the Board to reverse the finding of the Office Action of November 29, 2005, and to allow claims 1 to 6, 9 to 16, and 18 to 22.

Claims Appendix

1. A multilayer film comprising:

   a) a first and second outer layer each comprising a polymer; and

   b) an internal layer comprising an oxygen scavenger;

   wherein at least one of the first and second outer layers comprises a blend of:

   i) a polymer

   ii) a siloxane having a viscosity of from 1×10^7 centistokes to 5×10^7 centistokes, and

   iii) an antiblock agent ;

   wherein the kinetic coefficient of friction (film surface to film surface) of the film is 0.5 or less (ASTM D1894-99); and

   wherein the average oxygen scavenging rate of the film is at least 20 cc/m^2/day four days after an oxygen scavenging property of the film is activated.

2. The multilayer film of claim 1 wherein the polymer of the first and second outer layers comprises a material selected from the group consisting of ethylene/alpha olefin copolymer, ethylene/vinyl acetate copolymer, polyamide, polyester, maleic anhydride modified polyolefin, ionomer resin, ethylene/ acrylic or methacrylic acid copolymer, ethylene/ acrylate or methacrylate copolymer; and low density polyethylene.

3. The multilayer film of claim 1 wherein the oxygen scavenger comprises a material selected from the group consisting of:

   i) oxidizable organic compound and a transition metal catalyst,

   ii) ethylenically unsaturated hydrocarbon and a transition metal catalyst,

   iii) a reduced form of a quinone, a photoreducible dye, or a carbonyl compound which has absorbence in the UV spectrum,

   iv) a polymer having a polymeric backbone, cyclic olefinic pendent group, and linking group linking the olefinic pendent group to the polymeric backbone,

   v) a copolymer of ethylene and a strained, cyclic alkylene,

   vi) ethylene/vinyl aralkyl copolymer,

   vii) ascorbate,

viii) isoascorbate,

ix) sulfite,

x) ascorbate and a transition metal catalyst, the catalyst comprising a simple metal or salt, or a compound, complex or chelate of the transition metal,

xi) a transition metal complex or chelate of a polycarboxylic acid, salicylic acid, or polyamine,

xii) a tannin, and

xiii) reduced metal.

4. The multilayer film of claim 1 comprising a photoinitiator selected from the group consisting of benzophenone and its derivatives, tribenzoyl triphenylbenzene, tritoluoyl triphenylbenzene, thioxanthen-9-one, isopropylthioxanthen-9-one, 2,4,6-trimethylbenzoyldiphenylphosphine oxide, bis(2,4,6-trimethylbenzoyl)phenylphosphine oxide, ethyl-2,4,6-trimethylbenzoylphenyl phosphinate, bis(2,6-dimethoxybenzoyl)-2,4,4-trimethylpentyl phosphine oxide, and 4-benzoyl-4'-methyl(diphenyl sulfide).

5. The multilayer film of claim 1 comprising an oxygen barrier layer, disposed between the internal layer comprising the oxygen scavenger, and one of the first and second outer layers, the oxygen barrier layer having an oxygen transmission rate of no more than 100 $cc/m^2/24hr$ at 25°C, 0% RH, 1 atm (ASTM D 3985).

6. The multilayer film of claim 5 wherein the oxygen barrier comprises a material selected from the group consisting of polyester, polyvinyl alcohol, ethylene vinyl alcohol copolymer, polyethylene naphthalate, polyamide, copolyamide, polyacrylonitrile, acrylonitrile copolymer, liquid crystal polymer, SiO_x, polyvinyl chloride, polyvinylidene chloride, vinylidene chloride copolymer, carbon, metal, and metal oxide.

9. The multilayer film of claim 1 wherein the film is cross-linked.

10. The multilayer film of claim 1 wherein the film is biaxially oriented and heat shrinkable.

11. A laminate comprising:
    a) a multilayer film comprising:
        i) a first layer comprising a blend of:
            (a) a polymer;
            (b) a siloxane having a viscosity of from 1×10^7 centistokes to 5×10^7 centistokes, and
            (c) an antiblock agent;
        ii) a second layer comprising an oxygen scavenger; and
        iii) a third layer comprising a polymer, and
    b) a substrate bonded to the third layer of the multilayer film ;

wherein the kinetic coefficient of friction (film surface to film surface) of the film is 0.5 or less (ASTM D1894-99); and

wherein the average oxygen scavenging rate of the film is at least 20 cc/m^2/day four days after an oxygen scavenging property of the film is activated.

12. The laminate of claim 11 wherein the polymer of the first and third layers comprises a material selected from the group consisting of ethylene/alpha olefin copolymer, ethylene/vinyl acetate copolymer, maleic anhydride grafted polyolefin, ionomer resin, ethylene/ acrylic or methacrylic acid copolymer, ethylene/ acrylate or methacrylate copolymer; and low density polyethylene.

13. The laminate of claim 11 wherein the oxygen scavenger comprises a material selected from the group consisting of:

i) oxidizable organic compound and a transition metal catalyst,
ii) ethylenically unsaturated hydrocarbon and a transition metal catalyst,
iii) a reduced form of a quinone, a photoreducible dye, or a carbonyl compound which has absorbence in the UV spectrum,
iv) a polymer having a polymeric backbone, cyclic olefinic pendent group, and linking group linking the olefinic pendent group to the polymeric backbone,
v) a copolymer of ethylene and a strained, cyclic alkylene,
vi) ethylene/vinyl aralkyl copolymer,
vii) ascorbate,
viii) isoascorbate,

ix) sulfite,

x) ascorbate and a transition metal catalyst, the catalyst comprising a simple metal or salt, or a compound, complex or chelate of the transition metal,

xi) a transition metal complex or chelate of a polycarboxylic acid, salicylic acid, or polyamine,

xii) a tannin, and

xiii) reduced metal.

14. The laminate of claim 11 comprising a photoinitiator selected from the group consisting of benzophenone and its derivatives, tribenzoyl triphenylbenzene, tritoluoyl triphenylbenzene, thioxanthen-9-one, isopropylthioxanthen-9-one, 2,4,6-trimethylbenzoyldiphenylphosphine oxide, bis(2,4,6-trimethylbenzoyl)phenylphosphine oxide, ethyl-2,4,6-trimethylbenzoylphenyl phosphinate, bis(2,6-dimethoxybenzoyl)-2,4,4-trimethylpentyl phosphine oxide, and 4-benzoyl-4'-methyl(diphenyl sulfide).

15. The laminate of claim 11 comprising an oxygen barrier layer, disposed between the second layer comprising the oxygen scavenger, and at least one of the first and third layers, the oxygen barrier layer having an oxygen transmission rate of no more than 100 cc/m^2/24hr at 25°C, 0% RH, 1 atm (ASTM D 3985).

16. The multilayer film of claim 15 wherein the oxygen barrier comprises a material selected from the group consisting of polyester, polyvinyl alcohol, ethylene vinyl alcohol copolymer, polyethylene naphthalate, polyamide, copolyamide, polyacrylonitrile, acrylonitrile copolymer, liquid crystal polymer, SiO_x, polyvinyl chloride, polyvinylidene chloride, vinylidene chloride copolymer, carbon, metal, and metal oxide.

18. The laminate of claim 11 wherein the substrate comprises a polymeric film.

19. The laminate of claim 11 wherein the substrate comprises a metal.

20. The laminate of claim 11 wherein the substrate comprises a paperboard.

21. The multilayer film of claim 1 wherein the kinetic coefficient of friction (film surface to film surface) of the film is 0.4 or less (ASTM D1894-99).

22. The multilayer film of claim 1 wherein the kinetic coefficient of friction (film surface to film surface) of the film is 0.3 or less (ASTM D1894-99).

Evidence Appendix

No evidence described in 37 CFR §41.37(ix) was submitted by Appellant or entered by the Examiner.

Related Proceedings Appendix

There are no other appeals, interferences or judicial proceedings known to Appellant, Appellant's legal representative, or Assignee which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.